

**d. Remarks**

**Claim Amendments**

Amended claims 11 and 18 are supported, e.g., by Figures 1A and 6A; between page 4, line 28, and page 6, line 30; and at page 12, lines 20 – 31.

**Claim Objections**

In claims 1 and 11, “subcarrier” has been replaced by “optical subcarrier”.

In claims 1, 11, and 18, Applicants respectfully object to the request to replace “optical subcarrier” by “unmodulated optical subcarrier”, because no legal basis for such a requirement has been provided. Applicants request withdrawal of the request.

In claim 1, “inphase and quadrature components” has been replaced by “inphase and quadrature phase components”.

In claim 14, “electro-optical modulators” has been replaced by “controllable phase shifters” as is consistent with the recitations of amended claim 11.

**Rejections under 35 U.S.C. § 112**

At page 3, the Office Action implies that claims 1 and 11 are indefinite, because they do not recite how to generate the subcarrier. In response, Applicants note that the specification provides a disclosure sufficient for to those of skill in the art to understand how to generate exemplary coherent optical carriers with optical subcarriers. See e.g., page 1, lines 9 – 15, and U.S. Patent Application 10/133,469, which is incorporated by reference at page 5, lines 6 – 9. In amended claims 1 and 11, the language is sufficiently definite so that the public is informed of the boundaries of what constitutes infringement as required by 35 U.S.C. § 112, par. 2. See M.P.E.P. § 2173. For the above reasons, Applicants request withdrawal of the indefiniteness rejections to claims 1 and 11.

As amended, claim 18 does not recite “a modulated subcarrier”. Thus, the lack-of-definiteness rejection to such a recitation in claim 18 is now moot.

As amended, claim 18 recites “an optical subcarrier” at line 2. Thus, there is now antecedent basis to recite “the optical subcarrier” in the second-to-last line of claim 18.

### **Rejections under 35 U.S.C. § 102**

**At page 3, the Office Action rejects claims 1 – 20 as being anticipated by U.S. Patent Publication 2003/0058504 of Cho et al (Herein, referred to as Cho.).**

The Office Action relies on Fig. 11 and paragraphs 107 and 126 – 132 of Cho in its rejection of independent claims 1, 11, and 18.

#### Claim 1

Whereas present claim 1 recites “interfering the mutually coherent optical carriers to produce an output optical carrier”, at paragraph 0131, Cho states that his combiner 33 “combines the PSK optical pulse streams and the framing pulse stream to form an OTDM signal 35”, i.e., to form an optical time-division multiplexed signal. Cho’s combining step is not equivalent to the interfering step of pending claim 1, because Cho forms an OTDM signal rather making an output optical carrier with a modulated subcarrier as in pending claim 1. The formation of an OTDM signal is fundamentally different than the interfering step of pending claim 1. To form the OTDM signal 35, Cho combines PSK optical pulse streams 60 by temporally interleaving the optical pulses of the different ones of the streams 60. In the final OTDM signal 35, the optical pulses from different ones of the streams 60 are interleaved to not significantly overlap in time so that the pulses of one stream 60 do not interfere with the pulses of another of the streams 60. The absence of significant temporal overlap enables an independent data stream to be transmitted on each pulse stream 60 making up the final OTDM signal 35. Due to this temporal interleaving, the different pulse streams 60 would not have significant light intensities at the same time when combined in the combiner 33. For that reason, Cho’s combining step will not typically significantly interfere the light of the different pulse streams 60. Thus, Cho does not disclose an interfering step as in pending claim 1.

#### Claim 11

Whereas present claim 11 recites:

“the electro-optical modulator and light source being configured such that the mutually coherent optical carriers processed by the phase shifters interfere in the optical combiner”,

the above-cited portions of Cho does not disclose such a feature. In particular, Cho's transmitter 26 is not configured to interfere PSK optical pulse streams 60 in his combiner 33. Instead, Cho's transmitter 26 temporally interleaves the pulses of different ones of the streams 60 in the combiner 33 as described above. In particular, the transmitter 26 temporal interleaves of the optical pulses of the streams 60 to generate an OTDM signal 35 in which the various optical pulses would not typically significantly interfere. For that reason, the cited portions of Cho do not disclose the system of present claim 11.

#### Claim 18

Whereas present claim 18 recites:

“the electro-optical modulator and light source being configured such that optical carriers output by the waveguides interfere in the optical combiner in response to the source producing the coherent optical carrier”,

the above-cited portions of Cho do not disclose such a feature. In particular, Cho's transmitter 26 is not configured to interfere the various PSK optical pulse streams 60 in his combiner 33. Instead, Cho's transmitter 26 temporally interleaves the PSK pulse streams 60 in the combiner 33 as already described. The temporal interleaving is configured to generate the OTDM signal 35 in which the various optical pulse streams 60 would not typically have significant interference. For that reason, the cited portions of Cho do not disclose the system of present claim 18.

#### Dependent claims 2 – 10

Claims 2 – 10 are novel over the art, as applied in the Office Action, at least, by their dependence on novel base claim 1.

#### Dependent claims 12 – 17

Claims 12 – 17 are novel over the art, as applied in the Office Action, at least, by their dependence on novel claim 11.

#### Dependent claims 19 – 20

Claims 19 – 20 are novel over the art, as applied in the Office Action, at least, by their dependence on novel claim 18.

### **Conclusion**

Applicants request allowance of claims 1 – 20 as presented herein.

In the event of any non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit **Lucent Technologies Deposit Account No. 12-2325** to correct the error.

Respectfully,



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John F. McCabe, Reg. No. 42,854  
Telephone: 908-582-6866

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Lucent Technologies Inc.

Docket Administrator, Room 2F-190

600-700 Mountain Avenue

Murray Hill, NJ 07974-0636